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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/092,139

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William D. Tandy

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11/27/2006

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EXAMINER

CHANG, VICTOR S

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,139

Applicant(s)

TANDY ET AL.

Examiner

Victor S. Chang

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6,8,9,11,12,14,16,17,19,20,22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,8,9,11,16,17,19 and 24 is/are rejected.
- 7) ☒ Claim(s) 1,3,4,6,8,12,14,20 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. Applicants' amendments and remarks filed on 11/3/2006 have been entered. Claim 1, 6, 9, 12, 14, 17 and 20 have been amended. Claims 1, 3, 4, 6, 8, 9, 11, 12, 14, 16, 17, 19, 20, 22 and 24 are active.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

3. Claims 1, 3, 4, 6, 8, 12, 14, 20 and 22 are objected to because of the following informalities:

In claim 1, please add "and" before the phrase "forming a mark on the semiconductor device", so as to clarify the claim language.

In claims 6, 12, 14 and 20, the examiner suggests changing the term "at least the portion" to --at least a portion--.

Rejections Based on Prior Art

4. Claims 1, 3, 8, 9, 11, 16, 17, 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weng et al. [US 5972234] in view of Ishiwata et al. [US 5300172].

Weng's invention relates to a tape for marking a wafer (semiconductor device). A high-intensity energy beam is used to create a cavity or a mark through the tape. The tape is

laminated to a top surface of the semiconductor substrate and exposed to an etchant to form a mark in the substrate [abstract]. Weng teaches that any suitable tape of polymeric based material, which can be easily patterned by high-intensity energy beams such as ultraviolet light or laser, can be used [col. 4, lines 27-33]. The marking tape adheres to a substrate to be marked [col. 2, line 64]. A release layer (flexible film) may be provided to cover the adhesive layer for protection during the laser marking process [col. 4, line 64 through col. 5, line 2]. The release layer may be formed of any suitable material such as polypropylene or PET [col. 5, lines 1-2].

For claim 1, Weng lacks teachings of (1) the flexible film having a thermal expansion coefficient substantially similar to the semiconductor device; (2) two adhesive layers comprising a mixture of electromagnetic radiation-curable components; (3) forming a mark on a semiconductor device; (4) conditional process of use: "when a laser marks a semiconductor device" and "when laser marking a semiconductor device". However, regarding (1), since Weng teaches a marking tape having generally the same structure and composition as the instant invention and for the same use, selecting a release layer having a thermal expansion coefficient substantially similar to the semiconductor device is reasonably considered to be an obvious routine optimization, motivated by the desire to obtain full protection layer without separation at interface during the semiconductor marking process steps. Regarding (2), Ishiwata's invention relates to a surface-protection method during etching. Through the use of a radiation-curable adhesive tape at the time of etching, a tape is stuck onto an adherend wafer, then the radiation-curable adhesive layer is irradiation cured before the etching treatment, the cured adhesive has much enhanced etching resistance by improving acid resistance to the etching liquid, and by lowering the water absorption [col. 2, lines 49-57]. It would have been obvious to one of

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ordinary skill in the art to modify Weng's adhesive layer with a radiation-curable adhesive layer, as taught by Ishiwata, motivated by the desire to obtain an enhanced etching resistance. Finally, regarding the two layer structure of the adhesive layer, applicants are reminded that the latest amended Fig. 5 (submitted 12/20/2004) shows that the two layers are in fact the same, because both layers are identified as 1B. Further, the term "different" appears to be merely directing to different properties shown at different outer surfaces of the adhesive layer, because the recitation lacks any distinctive composition feature in the adhesive layers. Since Weng's single-layer adhesive provides these functions at outer surfaces, it reads on the two different adhesive layers as claimed, because the properties of one layer are not exclusive of the other. Regarding (3), since Weng teaches a laser marking tape for a wafer, it reads on the newly added limitation as claimed. Regarding (4), since the process of use is recited as conditional, i.e., optional, they are not considered as material limitations, and the prior art does not have to account for optional elements. Further, even if the process of use is considered, since the prior art teaches an adhesive layer curable by high intensity energy beams, including laser, the prior art reads this limitation as claimed.

For claim 3, since the surface of the semiconductor is not a structural element of instantly claimed laser-markable tape of claim 1, whether the surface of the semiconductor bears grinding marks or not bears no weight to the patentability. Further, even if it is considered, since Weng expressly teaches that the substrates includes a silicon wafer and any suitable electronic substrate materials that is utilized in the fabrication of electronic devices [col. 4, lines 18-20], Weng's teaching clearly encompasses the instantly claimed limitation as well.

For claim 8, Weng's polypropylene release layer is inherently translucent.

For claims 9, 11, 16, 17, 19 and 24, since they claim the same scope of limitations as claims 1, 3 and 8, they are also rejected as set forth above.

Response to Argument

5. Applicants argue at Remarks pages 8-9 that the combined teachings of prior art does not teach or suggest a tape which has a portion thereof left on a semiconductor device for a mark. However, such a limitation is absent from the independent claims 1, 9 and 17, and their dependent claims.

Applicants argue at page 10 that the different properties of the first and second layers of adhesives are clearly distinct, in contrast the Weng reference merely teaches or suggests a single layer of adhesive. However, applicants are reminded that the latest amended Fig. 5 (submitted 12/20/2004) shows that the two layers are in fact the same, because both layers are identified as 1B. Further, the term “different” appears to be merely directed to different properties required at different outer surfaces of the adhesive layers, and the limitations fail to recite any distinctive composition features in “different” adhesive layers. Since Weng’s single-layer adhesive provides these functions at “different” outer surfaces, it reads on the two adhesive layers as claimed, because the properties of one layer are not exclusive of the other.

Applicants argue at page 11, 1st paragraph, that to include radiation-curable components into any adhesive layer of Weng would render the invention inoperable, because applying any energy would cure the adhesive tape, which would prevent a pattern being formed through the tape. However, both Weng and Ishiwata teach that the marking tape is polymeric based curable material, which can be easily patterned by high-intensity energy beams such as ultraviolet light

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or laser. Further, Ishiwata specifically teaches the advantages of using a cured adhesive layer to provide an enhanced etching resistance to unmarked area. Applicants' unsupported argument appears to analyze the prior art in a vacuum and ignore the skill of the art.

Applicants argue at page 11, 2nd paragraph, that Weng merely describes a photodecomposition process employing an excimer type laser for ablating the polymeric based tape; Weng does not describe how an excimer laser affects the adhesive, any rejection based on Weng is based solely upon applicants' disclosure. However, the combined teachings of Weng and Ishiwata renders all the rejected limitations of instant invention obvious at the time the claimed invention was made, and the basis of rejection does not include any knowledge gleaned only from the applicant's disclosure.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

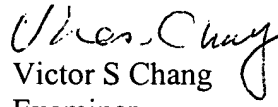
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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor S. Chang whose telephone number is 571-272-1474. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H. Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Victor S Chang
Examiner
Art Unit 1771

11/14/2006